

ZUSMAN, L.L.; BRODOV, A.A.; GORSHKOVA, L.P.

Use of manganese in the U.S.S.R. Sbor. trul. TSNIICHM no.45:  
101-114 '65. (MIRA 18:9)

ZUSMAN, I.I.

Use of ferrous metals in the national economy of the U.S.S.R.  
Sbor. trud. TSNIICM no.45:154-163 '65. (MJRA 18:9)

ZUSMAN, I.I.; DUBINAK, A.A.; ZHAPKOVA, V.A.; ZHELTOVSKAYA, A.A.

Methods of determining the volume and the composition of the  
U.S.S.R. metal stock by Union Republics and economic regions.  
Sbor. trud. TSNIICM no.45:57-57 '63. (MSRA 18:0)

ZUSMAN, L.I.; BRODOV, A.A.; GONSHKOVA, L.P.; YURMANOV, T.M. [deceased]

Economy of the production and consumption of low-manganese  
cast iron. Sbor. trud. TSNIICHH no.45:115-124 '63.

(MIRA 18:9)

ZUS'MAN, M.

Zus'man, M. - "Industrial turnover funds and methods for accelerating their turnover,"  
Bol'shevik Kazakhstan, 1949, No. 3, p. 98-104

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

CHILIKIN, M.M.; ZUSMAN, M.N.; KOVALEVA, A.G.

Ways of improving the water-repellent qualities of tarpaulin  
fabrics. Tekst.prom. 16 no.9:37-40 S '56. (MLRA 9:12)  
(Duck (Textile)) (Waterproofing of fabrics)

SIMIGIN, P.A.; ZUSMAN, M.M.; RAYKHLIN, P.I.; ROGOVAYA, I.V., redakter;  
GORDON, N.B.; retsenzent; PETREHIK, G.G., retsenzent; MEDVEDEV,  
L.Ya., tekhnicheskiiy redaktor.

[Protective impregnation of textile fabrics] Zashchitaye propitki  
tekstil'nykh materialov. Pod red. I.V. Rogovoi. Moskva, Gos. nauchno-  
tekhn. izd-vo M-va legkoi promyshl. SSSR. 1957. 298 p.

(MIRA 10:6)

(Textile finishing)

ZUSMAN, M.N.; PODOBEDOV, M.S.; PETROVA, Ye.A.; YAKUBENKO, Z.I.

Intensifying tarpaulin duck impregnation and dyeing processes.  
Tekst.prom. 15 no.12:43-46 D '55. (MIRA 9:3)  
(Duck (Textile)) (Dyes and dyeing)

ZUSMAN, M. N.

29095-Izucheniye Protssessov Vodopornnykh i Protivognilostnykh Propitok.  
Nauch-issled Trudy (Tsentr. Nauch-issled. In-T Lubyanykh Volokon)  
T. III, 1949, s. 39-71-Bibliogr: 12 Nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

ZUSMAN, Nison Samoylovich; YERZINA, Z.K., red.; SATTANIDI, L.D., tekhn.  
red.

[Rabbit-breeding section of a school farm] Prishkol'naya krolikovod-  
cheskaya ferma. Moskva, Izd-vo M-va sel'khoz. RSFSR, 1959. 31 p.  
(MIRA 14:9)

(Rabbits)

ZUSMAN, Nison Samoylovich, kand. biol. nauk; SHULEYKIN, P.A., red.;  
KUDRYAVTSEVA, O.V., tekhn. red.

[Raise rabbits] Razvodite krolikov. Moskva, Izd-vo "Znanie,"  
1963. 47 p. (Narodnyi universitet kul tury. Sel'skokho-  
ziaistvennyi fakul'tet, no.8) (MIRA 16:10)  
(Rabbits)

KVAPILEV, A.I., kand. sel'khoz. nauk; SEREBRYAKOV, K.M., nauchnyy sotrud.;  
DEMINA, M.F., kand. biolog. nauk; ZUSMAN, N.S., kand. biolog. nauk;  
LEPESHKIN, V.I., nauchnyy sotrud.; LEONTYUK, S.V., kand. veter. nauk;  
GUSEV, S.A., kand. veter. nauk; DOBYCHINA, I.N., red.; PROKOF'YEVA,  
L.N., tekhn. red.

[Rabbit raising] Krolikovodstvo. Moskva, Gos. izd-vo sel'khoz. lit-  
ry, 1960. 311 p. (MIRA 14:9)

1. Sotrudniki Nauchno-issledovatel'skogo instituta pushnogo sverovodstva i krolikovodstva (for all except Dobychina, Prokof'yeva).  
(Rabbits)

USSR/Farm Animals. Rabbits.

Q-3

Abs Jour: Ref Zhur - Biol., No. 22, 1958, 101228

Author : Popov, N.F., Kurilov, N.V., Novikov, V.K.,  
Zusman, N.S.

Inst : -

Title : Effects of Hormones Upon the Productivity of  
Rabbits.

Orig Pub: Vestn. s.-kh. nauki, 1957, No. 2, 115-117

Abstract: Experiments were carried out on 4 groups of  
rabbits consisting of 8 male and 7 female  
rabbits in each group. The first group was  
the control group. The second group received  
pregnene with their food, the third group were  
given pregnene with their food and were subcu-  
taneously injected with progesterone, and the

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USSR/Farm Animals. Rabbits.

Q-3

Abs Jour: Ref Zhur - Biol., No. 22, 1958, 101223

4th group was subcutaneously injected with progesterone only. These hormones were given in 1 mg daily dosages per animal for a period of one month. In rabbits of the 2nd group, weight increases amounted to 14.8, of the 3rd group to 48.7, and of the 4th group to 19.3 percent. As progesterone was introduced to 15-day-old baby rabbits in a 0.5 mg daily dose per each rabbit, their weight increased by 23.8 percent as compared with controls during a period of 40 days.

Card 2/2

KOVALEVSKAYA, I.L.; EPSHTEYN-LITVAK, R.V.; DMITRIYEVA-RAVICOVICH, Ye.M.;  
 KURNOSOVA, N.A.; SHCHEGLOVA, Ye.S.; FERDINAND, Ya.M.;  
 KHKMIK, S.R.; MAKHLINOVSKIY, L.P.; PETROVA, S.B.;  
 GOLUBOVA, Ye.Ye.; GONCHAROVA, Z.I.; SARMANKEYEV, A.P.;  
 SIZINTSEVA, V.P.; Prinimali uchastiye: MEDYUKHA, G.A.;  
 OSOKINA, L.A.; RACHKOVSKAYA, Yu.K.; OSOVISEVA, O.I.;  
 DEDUSENKO, A.I.; KOVALEVA, P.S.; KARASHEVICH, V.P.;  
 CHEBOTAREVICH, N.D.; CHIGIR', T.R.; SKUL'SKAYA, S.D.;  
 KECHETZHIYEV, B.A.; DEMINA, A.S.; ZUS'MAN, R.T.; YESAKOV, P.I.;  
 SYSOYEVA, Z.A.; ZINOV'YEVA, I.S.; FAL'CHEVSKAYA, A.A.;  
 DENISOVA, B.D.; TIMOFEEVA, R.G.; SYRKASOVA, A.V.;  
 LYANTSMAN, S.G.

Reactivity and immunological and epidemiological effectiveness  
 of alcoholic typhoid and paratyphoid fever vaccines in school  
 children. Zhur. mikrobiol., epid. i immuni. 33 no.7:72-77  
 J1 '62. (MIRA 17:1)

1. Iz Moskovskogo, Rostovskogo, Omskogo institutov epidemio-  
 logii i mikrobiologii, Stavropol'skogo instituta vaktsin i  
 syvorotok i Ministerstva zdavookhraneniya RSFSR. 2. Rostovskiy  
 institut epidemiologii i mikrobiologii (for Kovaleva).
3. Stavropol'skiy institut vaktsin i syvorotok (for Sysoyeva).
4. Kuybyshevskiy institut epidemiologii i mikrobiologii (for  
 Zinov'yeva). 5. Saratovskaya gorodskaya sanitarno-epidemiolo-  
 gicheskaya stantsiya (for Lyantsman).

LEVI, M.I.; BASOVA, N.N.; ZUS'MAN, R.T.; CHERNIKOVA, T.M.; SUCHKOV, M.G.;  
MUDNEV, M.M.

Incidence of influenza in Stavropol during the 1957 pandemic. Vop.virus.  
4 no.5:573-580 S-0 '59. (MIRA 13:2)

1. Nauchno-issledovatel'skiy protivochumnyy institut Kavkaza i Zakav-  
kaz'ya, Stavropol'.  
(INFLUENZA, statist.)

AL'TGAUZEN, O.N.; ZUSMAN, Sh.I.; STEPANOVA, A.N.

Thermomagnetic treatment of magnetically soft alloys with rectangular hysteresis loop, in vacuum furnaces. Metalloved. i or b. met. no. 11:60-62 N '58. (MIRA 11:11)

1. T Sentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. (Alloys--Magnetic properties) (Thermomagnetism) (Vacuum metallurgy)

AUTHOR: Zusman, Sh. I.

SOV/48-22-10-10/23

TITLE: Investigation of the Kinetics of the Establishment of Magnetic Texture in 65-Per-Cent Permalloy (Issledovaniye kinetiki ustanovleniya magnitnoy tekstury v 65%-nom permalloye)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 10, pp 1212 - 1216 (USSR)

ABSTRACT: In the present paper the author investigated the kinetics of the changes of magnetic properties in 65-permalloy due to low-temperature treatment. The obtained results together with the known facts permit to establish an analogy between the processes that by a thermomagnetic treatment lead to the formation of a rectangular hysteresis loop and such processes by which the deformation of the hysteresis loops is caused: a) Alloys which exhibit deformed hysteresis loops are particularly sensitive to thermomagnetic treatment; b) deformed hysteresis loops form in about the same temperature range in which the thermomagnetic treatment is effective. In the case of 65-permalloy the inferior limit is between 380 - 400°; the kinetics of the establishment of rectangular

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Investigation of the Kinetics of the Establishment  
of Magnetic Texture in 65-Per-Cent Permalloy

SOV/48-22-10-10/23

and deformed hysteresis loops follow an identical law. In the case of increasing temperature the rectangular and deformed hysteresis loops are produced in a high degree. The duration of the establishment of well-pronounced hysteresis loops is about the same and amounts to 2 - 3 hours at 440° and 15 - 20 minutes at 500°. From the results can be deduced that the deformation of the hysteresis loops as well as the formation of rectangular loops is caused by the formation of a magnetic texture. The type of the texture, however, must be different in both cases. As is known a rectangular hysteresis loop is caused by an orientation of the induction of the domains predominantly in the direction of the magnetic field applied during the thermomagnetic treatment. The formation of the deformed hysteresis loops apparently is connected with a complicated distribution of the magnetization of the domains. It is possible that the common reason for the formation of both types of hysteresis loops is an oriented-ordered distribution of the atoms in the lattice of the alloy (Refs 5 and 6). When optimum conditions for the thermomagnetic treat-

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Investigation of the Kinetics of the Establishment  
of Magnetic Texture in 65-Per-Cent Permalloy

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ment of 65-permalloy are to be chosen experimental results on the kinetics of the formation of the rectangular hysteresis loop in this alloy must be considered. The author thanks O. N. Al'tgausman for the interest shown. There are 7 figures and 10 references, 5 of which are Soviet.

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TABLE I BOOK REFLECTIONS 807/895

Moscow, Tsentrallyy mekhanizatsional'nyy institut Chernyy metallurgii.  
Tsentr tsentrallyy spetsializatsii

Prezidentskoye slyuzhbo (Precision Alloys) Moscow, Metallurgizdat, 1960. 251 p.  
(Series: Itai: Chernik traktor, 177. 2) Chernik ally inserted. 2,500 copies  
printed.

Additional Sponsoring Agency: USSR. Gosudarstvennyy planovyye komissiya.  
M.: D.I. Gubrilovskiy; Ed. of Publishing House: Ye.I. Levits; Tech. Ed.:  
Ye.A. Vynashkov.

FOREWORD: This book is intended for engineers and scientific personnel in the  
metallurgical, instrument-production, and electrical-equipment industries,  
as well as for industrial personnel engaged in the production of precision  
alloys. It may also be useful to students attending advanced technical schools.

CONTENTS: The articles in this collection present the results of investigations  
conducted in recent years by the Central Scientific Research Institute of  
Precision Metallurgy (Tsentrallyy mekhanizatsional'nyy institut Chernyy  
metallurgii). The articles deal with industrial techniques of producing soft  
magnetic alloys, properties and structure of the alloys at extremely low  
temperatures and in high-frequency magnetic fields, deformation behavior,  
superconductivity, the piezomagnetic effect, volume changes, etc. Some  
articles are concerned with the investigation of deformed hard magnetic alloys.  
No personalities are mentioned. The articles are accompanied by references,  
each Soviet and non-Soviet.

Sokolov, B.I. and G.I. Lyubov. Improved Dynamo Grade Electrical  
Steels With Al and As Additions.  
Sokolov, B.I. and E.P. Martynova. Alloys for Magnetic-  
Amplifier Cores

Rever, V.P. Investigation of the Properties and Structure of  
Soft Magnetic Alloys of Various Thickness

Shchegolev, Ye.I. Dependence of Dynamic Permeability of Permalloy  
Materials on Their Microscopic Heterogeneity

Gorshkov, Ye.I. Dynamic Magnetic Characteristics of Soft Magnetic  
Alloys Under Conditions of High-Frequency Volume

Belikov, L.D. Behavior of Certain Permalloy Materials in Weak  
High-Frequency Magnetic Fields ( $10^5$ - $10^6$  cps)

Polakov, I.N. and G.I. Lyubov. Saturation Magnetization of Ferro-  
magnetic Alloys in the Low-Temperature Range

Rever, V.P. and E.P. Martynova. Longitudinal Galvanomagnetic Effect  
in Iron-Nickel Alloys

Rever, V.P. Investigation of the Effect of Magnetic Anisotropy of  
Films

Rever, V.P. and E.P. Martynova. Magnetization of Nickel-Iron-  
Manganese Alloys

Shchegolev, Ye.I., E.P. Martynova, and E.I. Radtsig. Volume Magnetization  
of Iron-Nickel-Manganese Alloys

Polakov, I.N. and Ye.P. Solovskiy. Magnetization and Some Other  
Properties of Iron-Aluminum Alloys

Rever, V.P. Transverse-Anisotropy Attachment for the DMS-501 2-Ray Machine  
for Investigation of Deformation Processes in Soft Alloy This Study

Shchegolev, Ye.I., E.P. Martynova, and Ye.P. Solovskiy. Transverse and Longi-  
tudinal Galvanomagnetic Effect of Some Iron-Based Alloys

Lyubov, G.I., B.D. Vokhman, and E.P. Radtsig. Investigation of  
High-Permeability Iron-Aluminum Alloys Containing Additions of  
Manganese or Magnesium

Zemlin, B.I. Investigation of the Kinetics of the Establishment of  
Magnetic-Structure in 6% Phosphorus During Low-Temperature Annealing

ZUSMAN, Sh.I.

Investigating the kinetics of determining the magnetic texture  
of 65-percent permalloy in the process of low-temperature anneal-  
ing. Sbor.trud.TSNIICHM no.23:204-212 '60.

(MIRA 13:7)

(Permalloys--Magnetic properties)  
(Annealing of metals)

S/126/60/009/01/008/031  
E111/E191

18.1141

AUTHOR: Zusman, Sh.I.

TITLE: Anomalies in the Magnetic Properties of Fe-Al Alloys at High Temperatures

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 1, pp 41-47 (USSR)

ABSTRACT: The magnetic properties of technically important iron-aluminium alloys with 8-16% Al depend greatly on heat-treatment conditions. In the present investigation the magnetic properties of alloys with 8.5, 9.5, 10.6, 12.8 and 15.3 weight % Al were studied. Specimens (of 0.1 mm thick toroids in a porcelain container) were subjected to heat treatment in a vacuum furnace. Measurements were carried out at fixed temperatures during heating and cooling with the aid of windings on the container. Fig 1 shows hysteresis loops for the 10.6% Al alloy obtained at frequencies of 50 c/s at 20, 300, 400, 500, 600 and 650 °C during heating. The kinetics of the change of magnetic properties for the same alloy during isothermal treatment at 300 °C as a series of hysteresis curves for annealing in and without a magnetic field is

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S/126/60/009/01/008/031

E111/E191

Anomalies in the Magnetic Properties of Fe-Al Alloys at High Temperatures

shown in Fig 2, and the influence of demagnetization on the form of the hysteresis curves in Fig 3. The hysteresis curves for the alloy with 12.8% Al for a series of temperatures up to 550 °C during heating and cooling in and without the magnetic field are given in Fig 4. The hysteresis curves for the 15.3% Al alloy during heating are shown in Fig 5 for the heating process at 20, 400, 420 and 450 °C. Fig 6 shows the magnetic properties at room temperature of alloys as functions of aluminium content. The work showed that with 8-13% Al the high-temperature magnetic properties are those characteristic for perminvar-type alloys. There is a regular relation between the perminvar and thermomagnetic treatment effects, which the author does not consider to be directly linked with ordering processes. The disappearance of both effects in the 12.8% Al alloy on cooling to room temperature (as shown in Fig 4) is attributed by the author to the formation of an almost completely ordered atomic distribution over the lattice points. Ya.S. Shur (Ref 7) has proposed that the

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Z111/E191

Anomalies in the Magnetic Properties of Fe-Al Alloys at High Temperatures

thermomagnetic-treatment effect is associated with changes in the structural state of the ferromagnetic. As developed by later authors (Refs 8, 9), these directed ordering ideas can explain the observed perminvar properties and their relation to the thermomagnetic-treatment effect. The author considers that the discrepancies between his and other (Refs 11, 12) results and those of Taniguchi (Ref 10) are due to simplifying assumptions made by the latter in his calculations (which indicated that perminvar properties can only arise with negative values of the anisotropy constant). The observed growth, at high temperatures, in coercive force of alloys with almost stoichiometric composition (Figs 4, 5) which had been reported previously (Refs 2, 13) is due to lattice stresses produced by order-disorder transformation; these stresses arise through the appearance and growth of disordered regions in the ordered matrix.

There are 6 figures and 13 references, of which 7 are

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E111/E191

Anomalies in the Magnetic Properties of Fe-Al Alloys at High  
Temperatures  
Soviet, 2 English, 2 Japanese, 1 French and 1 German.

ASSOCIATION: TsNIChM

SUBMITTED: July 6, 1959

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ZUSMAN, Sh.I.

"Two Curie points" in iron-aluminum alloys. Fiz. met. i  
metalloved. 9 no. 4:635-637 Ap '60. (MIRA 14:5)

1. Institut pretsizionnykh splavov Tsentral'nogo nauchno-  
issledovatel'skogo instituta chernoy metallurgii.  
(Iron-aluminum alloys--Magnetic properties)

APTEKAR', I.L.; ZUSMAN, Sh.I.

Magnetic and electric properties and the constitutional diagram of Fe-Al alloys in the proximity of an Fe<sub>3</sub>Al compound. Fiz. met. i metalloved. 12 no.3:350-359 S 1961. (MIRA 14:9)

1. Institut presizionnykh splavov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii im. I.P. Bardina.

(Iron-aluminum alloys--Metallography)  
(Phase rule and equilibrium)

**AUTHORS:** Gromov, N. P., Zusman, Sh. I., Agaronik, V. Ya., Blakaya, D. G.  
**TITLE:** On the lengthwise uniformity of the resistance of an extremely thin wire.  
**SOURCE:** Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut Chernyye metallurgii. Sbornik trudov. no. 25. Moscow, 1962. Pretsizionnyye splavy. pp. 104-116.

**TEXT:** This paper reports the results of an experimental investigation, performed at the TsNIChM (Central Scientific Research Institute of Ferrous Metallurgy) intended to develop a methodology and construct equipment for the continuous inspection of the uniformity of the electrical resistance (ER) of extremely thin wires in the source of their motion. The problem is of the greatest importance for a variety of calculating and telemechanical devices in which the uniformity of the electrical resistance of potentiometer wire is a decisive element in determining the accuracy of measurements and telemetered information. The equipment newly constructed was used for the determination of the uniformity of the resistance of Ni-Cr wire 20-50  $\mu$  in diam. The experimental equipment comprises an idling feed spool and motor-driven take-up spool, between which the wire is guided by textolite guide rollers while in contact with a pair of spaced-apart contact rollers made of stainless steel.

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On the lengthwise uniformity of the resistance ....

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with a Cr-plated surface. Diam of the contact rollers is 50 mm, that of the guide rollers 20 mm. A braking load is applied to the feed spool. Measurements can be made at contact distances of 1 m or 0.5 m. The linear velocity of the wire is 23-25 m/min. The resistance measurements were performed by means of a DC bridge of the type MBJ (MVU) 49, a high-speed potentiometer of the type БП102 (BP102), and various auxiliary equipments. The theory of the dependence of the ER of the wire on the mechanical stresses prevailing therein is briefly outlined for given values of the Poisson coefficient and the Young modulus of elasticity. The results of an experimental illustrative test are shown graphically, illustrating the linear variation of the dependence up to the elastic limit for a 0.04-mm diam Ni-Cr wire. The conditions necessary to avoid any plastic bending stresses that may arise in contact with the guide and contact rollers are specified. Problems arising from the characteristics of the measuring equipment, the contact equipment, and the deformations of the wire while passing through the contact equipment, and the verification of the functioning of the entire equipment are discussed. It is found that the method and the equipment adopted here are suitable for the continuous measurement of the uniformity of the ER of micron wire along its length in the course of its motion. It is established that the degree of uniformity of the ER becomes less favorable with decreasing thickness of the wire. It is shown that cold-hardened wire exhibits a significantly better uniformity of the ER along its length as compared with

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On the lengthwise uniformity of the resistance ....

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wire that has been subjected to heat treatment. The source of the impairment of the uniformity in the latter is attributed primarily to the quenching of the wire in the furnace system. It is shown that significant impairments in the uniformity of the ER of a wire along its length can be produced by careless unwinding and rewinding.

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SI/776/62/000/025/009/025

AUTHOR: Zusman, Sh. I.

TITLE: The effect of thermomagnetic treatment and the Perminvar effect in soft magnetic alloys.

SOURCE: Moscow. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii. Sbornik trudov. no. 25. Moscow, 1962. Precizionnyye splavy. pp. 126-145.

TEXT: The paper describes the results of an experimental investigation of the kinetics of the changes in magnetic properties of alloys of the system Ni-Fe (65 and 75% Ni), Fe-Ni-Co (25% Co, 45% Ni), Fe-Co (43, 51, and 66% Co), and Fe-Al (8.3, 10.6, and 12.8% Al) at elevated temperatures ( $T$ ). The objective of the investigation was a study of the laws governing the processes that occur in alloys at elevated  $T$  and that are linked with the effect of the thermomagnetic treatment and the Perminvar effect. The alloys selected for this investigation pertained to different crystallographic systems: the cubic face-centered (the Ni-Fe and Fe-Ni-Co alloys) and the cubic body-centered (the Fe-Co and Fe-Al alloys). Among the alloys investigated there are ordered alloys (in the sense of long-range order: the 15% Ni-Fe, the 51% Co-Fe, and the 12.8% Al-Fe) and unordered (the 8.3% Al-Fe) alloys. The various alloys had different values of physical constants that affect the level of the

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magnetic properties (the anisotropy constant  $K$ , the magnetostriction  $\lambda$ , the saturation magnetization  $I_s$ , etc.). The oscillographic and ballistic methodology employed in the investigation is that described by the author in the same sbornik, no. 23, 1960, 205. A Perminvar effect was made evident in the Fe-Al system, most pronouncedly at  $T$  above  $300^\circ$ . Thus the Perminvar anomaly is not a peculiarity of the Fe-Ni alloys (binary and ternary alloys with ferromagnetic components), but appears to be a characteristic of a broader class of ferromagnetic solid solutions. Thermomagnetic treatment of these alloys leads to breakdown of the Perminvar effect and an increase in the residual induction, however, the Fe-Al alloys differ from Ni-Fe, Fe-Ni-Co, and Fe-Co alloys by the fact that the hysteresis loop does not become rectangular. Alloys with Perminvar properties are found to be more sensitive to thermomagnetic treatment. The processes linked to these effects proceed in the same  $T$  region and become more intense at higher  $T$ . The processes linked to the effect of the thermomagnetic treatment and the Perminvar effect proceed considerably more intensely in alloys with a body-centered lattice (the Fe-Al and Fe-Co alloys) than in alloys with a face-centered lattice (Ni-Fe and Fe-Ni-Co alloys). This, apparently, can be attributed to the greater diffusional mobility of the atoms in the body-centered lattice as compared with that of the face-centered lattice. Ordering has a substantial effect both on the effect of the thermomagnetic treatment and on the Perminvar effect. The processes that are linked to the effect of the

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thermomagnetic treatment proceed more slowly in ordered alloys than in unordered alloys. In alloys of the Perminvar type having a stoichiometric composition (the alloys  $\text{Ni}_3\text{Fe}$ ,  $\text{Fe}_3\text{Al}$ ), a protracted ordering anneal inhibits the Perminvar properties, whereas in alloys having a composition far from the stoichiometric, such anneal leads to a maximal development of Perminvar properties. The regularities of the processes connected with the effect of the thermomagnetic treatment and the Perminvar effect established in the present work can be quantitatively explained on the basis of the assumptions of the theory of directed ordering. There are 4 figures, 2 tables, and 23 references (8 Russian-language Soviet, 3 German, and 12 English-language, of which 1 in Russian translation).

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S/032/63/029/002/015/028  
B101/B186

AUTHORS: Gratsianov, Yu. A., Zusman, Sh. I., and Rabin'kin, A. G.

TITLE: Measurement of hysteresis loops of highly coercive alloys

PERIODICAL: Zavodskaya laboratoriya, v. 29, no. 2, 1963, 200

TEXT: Exchangeable Armco iron shoes (Fig. 1) permitting a measurement of the magnetic properties of platinum-cobalt alloy specimens, diameter 5-15 mm, length 10-15 mm, were constructed for the permeameter of a LY-3 (BU-3) apparatus. Magnetic fields up to 18,000 oe can be obtained with a gap of 15 mm, up to 23,000 oe with a gap of 10 mm. The magnetic field in the cross section of a 15 mm gap is uniform to within 1% accuracy. There are 2 figures.

ASSOCIATION: Institut pretsizionnykh splavov TsNIICHM  
(Institute of Precision Alloys TsNIICHM)

Fig. 1. Design of the shoes.

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ZUSMAN, Sh.I., kand.fiziko-matematicheskikh nauk

1. Tsentral'nyy nauchno-issledovatel'skiy institut Chernoy metallurgii imeni Bardina.

Magnetic grain-oriented alloy with constancy of permeability in a wide range of fields and permeability level. Elektrotehnika no.5:73-76 My '65. (MIRA 18:6)

1. Tsentral'nyy nauchno-issledovatel'skiy institut Chernoy metallurgii imeni Bardina.

L 6974-66 EWT(b)/EWA(d)/I/EWP(t)/EWP(z)/EWP(b) IJP(c) MJN/JD/HW/MJN(CL)  
ACC NR: AP5018870 SOURCE CODE: UR/0126/68/020/001/0153/0155

AUTHOR: Zusman, Sh. I. 56  
55  
B

ORG: Central Scientific Research Institute of Ferrous Metallurgy im. I. P. Bardin  
(Tsnlchermet) 44, 53

TITLE: The effect of thermomagnetic treatment in a cross-sectional field on the magnetic properties of alloys of the system Fe-Ni-Co 27, 27, 27

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 1, 1965, 153-155

TOPIC TAGS: iron containing alloy, nickel containing alloy, cobalt containing alloy, permalloy, thermomagnetic effect, Curie point

ABSTRACT: More than 25 permalloys of the Fe-Ni-Co ternary system were studied with compositions 20-60% Ni, 15-35% Fe, remainder Co. The specimens were toroids turned from alloy ribbon .02 mm thick. During thermomagnetic treatment in a cross-sectional field the magnetic field is applied in the direction of the toroid axis. To reduce demagnetizing effects several toroids are joined axially and extended at the ends by Permendur cores - an alloy with high saturation and high Curie point. The

Card 1/4

UDC: 538.245 : 213

L 6974-66

ACC NR: AP5018870

treatment takes place in a furnace mounted in a solenoid. For all alloys investigated thermomagnetic treatment in a cross-sectional field leads to significant changes in magnetic properties.  $\mu_{\max}/\mu_0$  which characterizes the constancy of susceptibility at varying H falls from 4-8 to 1.1-1.3; while  $\mu_0$  rises by 1.5-2 times.  $\mu_{\max}$  decreases by 2-3 times, significantly lowering the residual induction. After the treatment specimens show magnetic stability and insensitivity to "magnetic shock," characteristics opposite to the instability shown by permivar alloys cooled slowly without a magnetic field. Also B(H) is most nearly linear for alloys located in a narrow region (of the ternary system) along a line with co-ordinates 36% Ni, 28% Co, 36% Fe; 43% Ni, 25% Co, 32% Fe; 47% Ni, 23% Co, 30% Fe; 53% Ni, 20% Co, 27% Fe. This line corresponds to the line of neutral, magnetic crystallographic anisotropy K [Puzey I. M., F M M, 1963, 16, 2, 179]. The magnitude of  $\mu_{\max}/\mu_0$  and the coefficient of the amplitude of instability of susceptibility  $\phi_H = \mu_1 - \mu_0/\mu_0 (H_1 - H_0)$  monotonously decrease inversely with holding time in the magnetic field during the thermomagnetic treatment. This is linked with the establishment and perfecting of a single axis of anisotropy. The level of susceptibility increases with temperature and decreases with holding time. The most linear magnetization curve is attained with long holding times at sufficiently low temperatures. Sample results are shown in fig. 1. The alloy may be used as a constant susceptibility ferromagnet for the

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L 6974-66

ACC NR: AP5018870

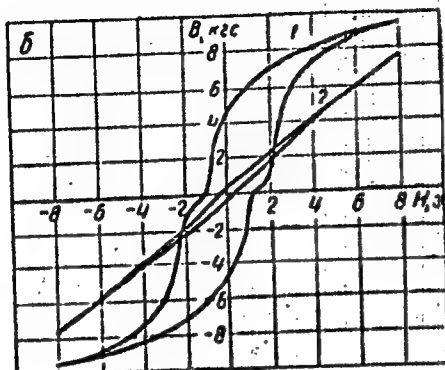


Fig. 1. (b) Alloy 47Ni23K, after heating (1) and following thermomagnetic treatment in a cross-sectional field (2).

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L 6974-66

ACC NR: AP5018870

preparation of cores for coils having constant inductance at and above audio frequencies. Orig. art. has: 2 figures.

SUB CODE: MM/ SUBM DATE: 21Jul64/ ORIG REF: 002/ OTH REF: 005

*beh*  
Card 4/4

1. 24843-66 ENT(d)/ENT(m)/ENP(v)/T/ENP(k)/ENP(h)/ENP(a) DJ  
ACC NR: AP6007685 (A) SOURCE CODE: UR/0013/65/000/003/0066/0066

AUTHORS: Zusman, Sh. M.; Ivanov, N. P.; Gutepki, V. A.

ORG: none

TITLE: Device for controlling the accumulated circular pitch error in gears. Class 42, No. 178502

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 3, 1966, 66

TOPIC TAGS: gear cutting machine, ~~actuating~~ *transmission gear*

ABSTRACT: This Author Certificate presents a device for controlling the accumulated circular pitch error in gears, based on the sequential measurement of error by the position of two identical profiles diametrically placed. The device contains a supporting and a measuring carriage, vertically adjustable centers for mounting the wheels in a fixture, synchronously rotating supporting and measuring probes in the form of worms in constant contact with the controlled gear, and a measuring device. To increase measuring accuracy and to simplify construction, the supporting and measuring probes are in the form of flat, split spring disks with part of the profile bent to the size of the controlled gear pitch. These are used to index the gear to the next measuring position (see Fig. 1).

Card 1/2

UDC: 53.088.7.03:621.833

L. 24843-66

ACC NR: AP6007685

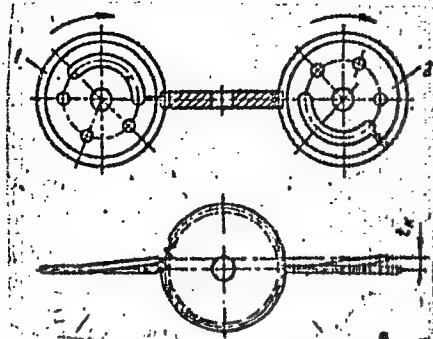


Fig. 1. 1 and 2 - supporting  
and measuring probes;  
 $t_k$  - controlled gear pitch.

Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 17Apr64

Card 2/2 data

ZUSMAN, V.

Expansion of refrigeration in the meat combines of Moldavia.  
Mias. ind. SSSR 34 no.4:30-32 '63. (MIRA 16:10)

1. Gosudarstvennyy komitet Soveta Ministrov Moldavskoy SSR  
po koordinatsii nauchno-issledovatel'skikh rabot.

ZUSMAN, V.

Moldavian meat packing industry. Mias. ind. USSR 29 no.2:5-6  
'58. (MIRA 11:5)

1. Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov  
Moldavskoy SSR.  
(Moldavia--Meat industry)

ZUSMAN, Sh.I.

Investigation of the kinetics of the formation of the magnetic texture of 65o/o permalloy. Izv. AN SSSR. Ser. fiz. 22 no.10: 1212-1216 '58.

(MIRA 12:3)

(Permalloy--Magnetic properties)

SOV/129-58-11-11/13

AUTHORS: Al'tgauzen, O.N., Zusman, Sh. I., and Stepanova, A.N.

TITLE: Thermomagnetic treatment in vacuum furnaces of magnetically soft alloys with a rectangular hysteresis loop (Termomagnitnaya obrabotka magnitnomyagkikh splavov s pryamougol'noy petley gisteretizisa v vakuumnykh pechakh)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 11, pp 60-62 (USSR)

ABSTRACT: In the Institute for Precision Alloys TsNIIChm, a vacuum shaft furnace with spiral heating elements of nichrome and the alloy EI695 was used which made continuous temperature control of the furnace possible, particularly below 700°C. A sketch, Fig.1, shows the arrangement of the magnetising device and of the specimens during thermomagnetic treatment (design proposed by N. A. Kalmychek, NII MRTP). The high temperature annealing and the thermomagnetic treatment were effected in accordance with regimes enumerated in a Table, p 62. The magnetic properties of alloys after the thermo-magnetic treatment with fields of various magnitudes are graphed in Fig.2. The high temperature treatment consisted of annealing in vacuum at 1100°C for two hours, cooling with a speed

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SOV/129-58-11-11/13

Thermomagnetic treatment in vacuum furnaces of magnetically soft alloys with a rectangular hysteresis loop

of 100°C/hr to 600 and 200°C respectively, followed by cooling with the container in air. The thermomagnetic treatment consisted of the following: Alloy 50NP: heating at 600°C for one hour, cooling inside a magnetic field at 50°C/hr to 400°C, cooling by 100°C/hr to 200°C followed by cooling with the container in air; alloy 65NP: heating at 700°C for 4 hours, cooling inside a magnetic field to 200°C with a speed of 100°C/hr, followed by cooling in air with the container; heating to 800°C for one hour, cooling inside a magnetic field with a speed of 100°C/hr down to 200°C, followed by cooling in air with the container (alloy 34NMP). Analysis of the obtained results enables the following conclusions: for all the alloys separate high temperature and thermomagnetic treatment in vacuum can result in obtaining magnetic properties which satisfy the specified technical requirements. The magnitude of the magnetic properties depends to a large extent on the intensity of the field applied during the heat treatment; to obtain a maximum improvement of the magnetic properties it is sufficient for all

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SOV/129-58-11-11/13

Thermomagnetic Treatment in Vacuum Furnaces of Magnetically  
Soft Alloys with a Rectangular Hysteresis Loop

the tested alloys to use a magnetic field potential of 10 to 15 Oe. An increase in the magnetic field strength does not result in an improvement of the properties of the alloys. Within the investigated thicknesses the effect of the thermomagnetic treatment is practically independent of the character of the applied field (d.c., pulsating or 50 c.p.s. fields), provided their amplitude values are the same. This conclusion confirms the results obtained by Kelsall (Physics, 1934, Nr 5). For larger thicknesses it is necessary to verify the influence of the surface effect in the case of treatment with an a.c. field. The carried out work has shown that the thermomagnetic treatment of the investigated alloys can be effected in furnaces used for high temperature treatment of these alloys, provided the magnetising circuits are fed with d.c. or a.c. currents.

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SOV/129-58-11-11/13

Thermomagnetic Treatment in Vacuum Furnaces of Magnetically  
Soft Alloys with a Rectangular Hysteresis Loop

There are 2 figures, 1 table and 3 references, 2 of  
which are Soviet, 1 English.

ASSOCIATION: TsNIICHM

1. Alloys--Heat treatment
2. Alloys--Magnetic factors
3. Alloys--Properties
4. Vacuum furnaces--Performance

Card 4/4

S/126/61/012/003/003/021  
E194/E180

AUTHORS: Aptekar', I.L., and Zusman, Sh.I.

TITLE: Magnetic and electrical properties and diagram of state of Fe-Al alloys close in composition to  $\text{Fe}_3\text{Al}$

PERIODICAL: Fizika metallov i metallovedeniye, v.12, no.3, 1961, 350-359

TEXT: This article describes a study into the kinetics of changes in magnetic and electrical properties of Fe-Al alloys at high temperatures. The object of the work was to establish relationships between these properties and the structural state of the alloys. The article opens with a review of previous work on the subject. The tests were made with an alloy containing 12.8 wt.% aluminium (23.2 at.%) which, according to Taylor and Jones (Ref.6; A. Taylor, R. Jones. J. Phys. Chem. Solids, 1958, Vol.6, 16, 37; J. Appl. Phys., 1958, Vol.29, 3, 522) is in the two-phase region at room temperature. For comparison, tests were also made with an alloy of 14.2 wt.% aluminium (25.4 at.%) which is close to the stoichiometric composition of the intermetallic compound, and an alloy with 8.3 wt.% aluminium (15.7 at.%).

Card 1/8

Magnetic and electrical properties and... S/126/61/012/003/003/021  
E194/E180

The alloys were melted in a high frequency induction furnace with a magnesite crucible. The amount of carbon, silicon and phosphorus was minimal in the melts and the total content of Mn and Si did not exceed 0.3%. The ingots were forged into bars, cleaned and hot rolled at 1000-1050 °C, and then cold rolled to a thickness of 0.1 mm. Strip samples for magnetic tests were vacuum annealed at 1100 °C for five hours with slow cooling to room temperature. The high temperature tests were made in vacuum. The magnetic measurements were made by ballistic and oscillographic methods; the coercive force was measured either on toroids with an internal diameter of 20 mm and an external diameter of 30 mm or on solenoids made of strips 120 mm long and 5 mm wide. Electrical resistance of hardened specimens was measured during rapid heating (500 °C/hour) and remeasured after a long annealing in vacuum. The kinetics of change in magnetic and electrical properties were studied on specimens quenched in water from 900 °C. Fig.1 shows the saturation magnetisation  $4\pi I_s$  and coercive force  $H_c$  as a function of temperature for the alloy with 12.8% weight aluminium. Fig.2 shows similar curves for alloys with 14.2 and 8.3% Al.

Card 2/8

Magnetic and electrical properties... S/126/61/012/003/003/021  
E194/E180

Fig.3 shows the change of coercive force of previously hardened specimens of the 12.8% aluminium alloy against holding time (in hours). It will be seen from Fig.1 that at about 400-600 °C there is a sharp maximum in the coercive force with a corresponding inflection in the curve of saturation magnetisation. There are no such anomalies in the curves for alloys of 14.2 and 8.3% aluminium. There are two clearly marked temperature regions in Fig.3; below 450 °C there is a comparatively small increase in the coercive force, but the increase becomes more marked at higher temperatures. Similar results were obtained on the 14.2% Al alloy but, since the Curie point of this alloy is 500°C, measurements of coercive force could be made only up to 450°C. By using the low inertia oscillograph procedure it was possible to follow changes in magnetic properties during rapid heating and cooling. Hysteresis loops were obtained for the alloy with 12.8% Al during heating over a period of 10-15 minutes to a temperature above the Curie point, and whereas at room temperature the hysteresis loops of water quenched samples are the same as those of slowly cooled samples, at high temperatures there is a considerable difference.

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Magnetic and electrical properties ... S/126/61/012/003/003/021  
E194/E180

With hardened samples there is no noticeable broadening of the hysteresis loop at any temperature, but with slowly cooled samples it was very pronounced between 450-575 °C. Resistivity is plotted against temperature in Fig.6; white circles refer to equilibrium conditions, black circles to the hardened state. It was found that the curves obtained on heating slowly cooled alloys are close to the equilibrium. Fig.7 shows the change of electrical resistance for hardened 12.8% aluminium alloy against holding time in hours. The resistance falls the faster, the higher the temperature. Comparing Figs. 7 and 3 it will be seen that, on isothermal holding, resistance changes more rapidly than coercive force. The following conclusions are drawn from the above results. In the alloy with 12.8% aluminium, two diffusion processes (with different values of activation energy and relaxation time) can occur in two distinct temperature ranges: 250-450 and 500-575°C. The alloy with 14.2% Al displays only one process similar to the low temperature process in the 12.8% Al alloy. Unusual physical properties, such as a maximum in the coercive force/temperature curve, an inflection in the saturation

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Magnetic and electrical properties and.. S/126/61/012/003/003/021  
E194/E180

magnetisation curve, and a reduction in resistance as compared with the hardened condition, are observed in the 12.8% Al alloy above 450 °C in the equilibrium condition but not in the alloy with 14.2% Al. Comparison of these results with the equilibrium diagram of Taylor and Jones indicates that the change in the physical properties of alloys with 12.8 and 14.2% Al in the lower temperature region are due to the formation of a homogeneous order of type  $\alpha_{Fe_3Al}$  whilst changes in the properties of the alloy with 12.8% Al in the upper temperature region (up to 550°) are due to the formation of two phases, which is not in accordance with Taylor and Jones who suppose that there is a homogeneous phase in this region.

There are 7 figures and 16 references; 8 Soviet-bloc and 8 non-Soviet-bloc. The four most recent English language references read: ✓  
Ref.6: as quoted in the text above.

Ref.7: W. Bennet. J. Iron Steel Inst., 1952, 171, 1, 372.

Ref.10: H. McQueen, G. Kuczunski, Trans. AIME, 1959, 215, 4, 619.

Ref.11: R. Feder, R. Cahn. Phil. Mag., 1960, Vol.5, 52, 343.

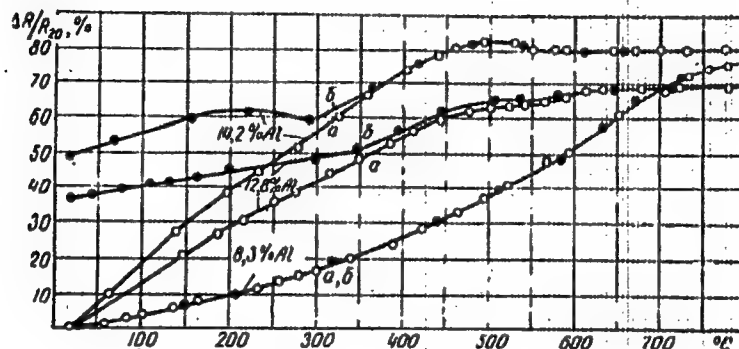
Card 5/9½

Magnetic and electrical properties and... S/126/61/012/003/003/021  
E194/E180

ASSOCIATION: Institut pretsizionnykh splavov TsNIChM imeni  
I.P. Bardina (Institute of Precision Alloys  
TsNIChM imeni I.P. Bardin)

SUBMITTED: December 6, 1960

Fig.6



Card 6/9

SIDOROV, A.; ZUSMAN, V.

Processing swine with removal of skin (croupon). Mins. ind. SSSR  
31 no.3:20-22 '60. (MIRA 13:9)

1. Sovnarkhoz Moldavskoy SSR (for Sidorov). 2. Gosudarstvennyy  
nauchno-tekhnicheskiy komitet Soveta ministrov Moldavskoy SSR  
(for Zusman).  
(Swine) (Hides and skins)

ZUSMAN, V.

Moldavia - Cold Storage

New cold storage plants in Moldavia. Khol,tekh. 30, No. 1, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Unclassified.

ZUSMAN, V.

Cold Storage - Moldavia

New cold storage plants in Moldavia. Khol. tekhn. 30, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

1. ZUSMAN, V., Eng.
2. USSR (600)
4. Moldavia - Dairy Plants
7. Mechanization of production processes in butter and cheese plants in Moldavia.  
Moloch. prom. 14, No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, May 1953. Unclassified.

ZUSMAN, V.

Using the credit of the State Bank for expanding industry. Mias.  
ind. SSSR 27 no.1:41-43 '56. (MIRA 9:6)

1.Ministerstvo promyshlennosti myasnykh i molochnykh produktov  
Moldavskoy SSR.

(Meat industry--Finance)

USSR/Electronic Equipment Control, Electronics	Aug 1947
Electron-ionic Controlled Drive for Metal Cutting Machines, Y. G. Zayman, Candidate in Technical Sci- ences, P. V. Markin, Eng, ENIS, 9 pp	
Serial 1 Instrument" No 8	
Describes the general principles of the machine, and the system of electronic control of drive as worked out by ENIS. Describes the electrical circuits, the control circuit, the circuit for the grid control of the inverter, and explains the control system. Many photographs and diagrams of various parts and circuits of the apparatus. Tests have shown this apparatus to be highly efficient. It is able to regulate the speed of revolution of the motor within the limits of 1:60, and 1:75 and it is small in size.	
ENIS/Electronic Equipment (Contd)	34720 Aug 1947

KHARIZOMENOV, I.V.; ZUSMAN, V.O., kandidat tekhnicheskikh nauk, retsenzent;  
KHALIZEV, G.P., retsenzent, redaktor; TIKHONOV, A.Ya.; tekhnicheskiy  
redaktor; POPOVA, S.M., tekhnicheskiy redaktor

[Electric equipment for metal-cutting machines] Elektricheskoe  
oborudovanie metallorezhushchikh stankov. Moskva, Gos. nauchno-  
tekh. izd-vo mashinostroit. lit-ry, 1952. 309 p. [Microfilm]  
(Machine tools) (MIRA 7:10)  
(Electric apparatus and supplies)

RAZYGRAYEV, A.M.; SABININ, Yu.A., kandidat tekhnicheskikh nauk, nauchnyy  
redaktor: ZUSEMAN, V.G., kandidat tekhnicheskikh nauk, rezensent.

[Electronic control of metal cutting machines] Elektronnoe upravle-  
nie na metalloreshushchikh stankakh. Leningrad, Gos. nauchno-tekhn.  
izd-vo mashinostroit. i sudostroit. lit-ry [Leningradskoe otd-nie]  
1953, 103 p. (MLRA 7:7)  
(Metal cutting) (Electronic control)

Subject : USSR/Electricity

AID P - 1478

Card 1/1 Pub. 27 - 29/36

Author : Zusman, V. G., Kand. of Tech. Sci.

Title : Scientific and technical conference on electrical equipment of metal-cutting machine tools (Current Events)

Periodical : Elektrichestvo, 2, 78-80, F 1955

Abstract : The conference took place in N 1954. It was organized by the Experimental Scientific Research Institute for Metal-Cutting Lathes of the Ministry of Machine Tool and Instrument Building Industry. More than 250 representatives of various factories and institutes from 42 cities of the USSR participated in the conference. 24 reports were presented and discussed. A partial list of reports and a summary of the discussion follows.

Institution: None

Submitted : No date

Some of the types of magnetic couplings, made of ferromagnetic materials, are described. The types of friction couplings, made of plastic, are described. A special light disk (overhead) lubricated electrodynamic coupling for automatic action is described. The types of couplings, made of widely used materials, are described. A complete series of such couplings is manufactured. The thermoplastic powder couplings are also described and suitable materials for the powder fillings are recommended. The principle of construction of the magnets circuit of powder couplings and its application combined with a multi-pole system for obtaining steep dynamic characteristics is discussed. Special models of such powder couplings, namely, dynamic couplings with 120 kg, require a powder brake for a ferro-concrete reinforcement winding machine with 600 kg, as driving torque and other types are described. Further possible use are indicated.

ZUSMAN, V. G.

AID P - 2004

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 3/31

Authors : Petrov, I. I., Kand. of Tech. Sci., Dotsent, and  
Zusman, V. G., Kand. of Tech. Sci., Dotsent, Moscow

Title : Prospects of development of automatic control of machine  
tool groups

Periodical: Elektrichestvo, 4, 37-41, Ap 1955

Abstract : The authors analyze the more complicated system of  
group control of machine tools like cutting and turning  
machinery for the tooling of automobile cylinder blocks  
and of automobile pistons. The number of contact  
openings per hour in these two cases goes as far as  
14,557 in the first and 64,600 in the second type of  
operation. The authors propose simplifying such  
operations by a transition from contact-relay control  
to contactless electrical and electronic senders, and  
also by the use of electronic apparatus based on secondary

AID P - 2004

Elektrichestvo, 4, 37-41, Ap 1955

Card 2/2 Pub. 27 - 8/31

electron emission principles. They present a general characteristic of various kinds of contactless systems of control. Two tables.

Institution: Institute of Automation and Remote Control of the Academy of Sciences of the USSR, and the Experimental Scientific Research Institute for Metal-Cutting Lathes (ENIMS)

Submitted : 0 30, 1954

SOV/112-57-6-12391

Translation from: Referativnyy zhurnal. Elektrotehnika, 1957, Nr 6, p 108 (USSR)

AUTHOR: Petrov, I. I., Zusman, V. G.

TITLE: Electrical-Control Systems for Automatic Machine Lines and Fundamental Problems in Their Further Perfecting and Development  
(Sistemy elektricheskogo upravleniya avtomaticheskimi stanochnymi liniyami i osnovnyye zadachi dal'neyshego ikh uluchsheniya i razvitiya)

PERIODICAL: V sb.: Avtomatizatsiya tekhnol. protsessov v mashinostr. Privod i upravleniye mashinami. M., AS USSR, 1956, pp 84-98

ABSTRACT: Some peculiarities of automatic production-machine lines have been revealed as a result of an analysis of the electric-control systems of 14 lines. Underlying all the schemes of automatic machine-line control is the principle of control as a function of travel performed by working parts of the machine. An example is examined of automating a section of the line on which pistons are machined. The control of automatic lines has the following peculiarities: a closed control cycle for each individual machine, interconnections between these controls and with the control of transportation and loading devices and

Card 1/2

SOV/112-57-6-12391

Electrical-Control Systems for Automatic Machine Lines and Fundamental . . . .

with the control system of the entire line. Special devices are provided for fault location in automatic lines; a light signal of the automatic line is cited as an example. As coordination is necessary between electrical, mechanical, hydraulic, and pneumatic links, it is suggested that along with the simplified electrical circuit diagram, a block diagram of machines be compiled to facilitate understanding the operation of complicated combines. As an example, a block diagram of the control of a centerless grinding machine is presented. The principal equipment used in automatic lines are relays, contactors, and various track switches. The number of contact operations in this equipment may reach several tens of thousands per hour, and at an automatic piston factory, up to 300,000 per hour. As a result, the reliability of the line operation is largely dependent on the reliability of equipment operation and on its service life. Tasks for further improvement and development of electrical-control systems for automatic lines are outlined; the use of contactless control apparatus, multicircuit multicommand and pulse-distributing devices, electronic and semiconductor devices combined with magnetic automatic devices.

V.N.N.

Card 2/2

BARSUKOV, A.A., inzhener; ZUSMAN, V.G., kandidat tekhnicheskikh nauk, dotsent.

"Power electrohydraulic drive." M.G. Chilikin, A.M. Korytin, V.N. Prokof'ev. Reviewed by A.A. Barsukov, V.G. Zusman. Elektrichestvo no.5:95-96 My '56. (MLRA 9:8)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorazhushchikh stankov.

(Machine tools--Hydraulic driving) (Chilikin, M.G.)  
(Korytin, A.M.) (Prokof'ev, Vladimir Nikolaevich)

Zusman, V.G.

AID P - 5179

Subject : USSR/Engineering

Card 1/2 Pub. 103 - 1/24

Authors : Zusman, V. G. and I. A. Vul'fson

Title : Simultaneous and sequential control of machine tools

Periodical : Stan. 1 instr., 7, 1-9, J1 1956

Abstract : Referring to numerous foreign sources, mostly American and English, on automatic and computer-controlled machine-tools, the authors discuss various simultaneous and sequential control systems. They describe the punch-card method, the L. A. Gleyzer system, tape and other recording systems, also - several methods of interpolation and the back-feed controls. The selsyn system and the Ferranti diffraction grating system are also discussed. Twenty three diagrams, 4 photos; 31 non-Russian references, predominantly American and English (1954-1956), and 3 Russian references (1955-1956).

AID P - 5179

Stan. 1 instr., 7, 1-9, J1 1956

Card 2/2      Pub. 103 - 1/24

Institution : None

Submitted : No date

ZUSMAN, V.G.

VERKHOLAT, Mikhail Yefimovich; FATEYEV, Aleksandr Vasil'yevich; ZUSMAN, V.G.  
kand.tekhn.nauk, retsenzent; MAYDIS, V.A., inzh., retsenzent;  
SABININ, Yu.A., kand.tekhn.nauk, red.; VASIL'YEVA, V.P., red.izd-va;  
SOKOLOVA, L.V., tekhn.red.

[Analysis of work and calculation of elements of electric drives]  
Analiz raboty i raschet elementov elektricheskogo privoda. Moskva,  
Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 105 p.  
(Electric driving) (MIRA 11:3)

CHILIKIN, M.G., prof.; ZUSMAN, V.G., kand.tekhn.nauk; YERZHEV, V.V., red.;  
BORUNOV, N.I., tekhn.fed.

[Electric equipment for metal-cutting machines] Elektrooborudo-  
vanie metalloreshushchikh stankov. Pt.2.[Controlled electric  
drive] Reguliruemyi elektroprivod. Moskva, Gos. energ. izd-vo.  
1958. 175 p. (MIRA 12:1)  
(Machine tools--Electric driving)

CHILIKIN, M.G., prof., red.; ZISMAN, V.G., kand.tekhn.nauk, red.;  
YEZHKOVA, V.V., red.; BORUNOV, M.I., tekhn.red.

[Electric equipment of metal cutting machines] Elektrooborudovanie metalloreshushchikh stankov. Part 3 [Automatic control of machines] Elektroavtomatika stankov. Moskva, Gos. energ. izd-vo. 1958. 236 p. (MIRA 12:2)  
(Machine tools) (Automatic control)

SANDLER, Abram Solomonovich; CHILIKIN, M.G., prof., red.; ZUSMAN, V.G.,  
kand.tekhn.nauk, dotsent, retsenzent; KARNYUSHIN, L.V., kand.  
tekhn.nauk, dotsent, retsenzent; ZIMIN, Ye.N., kand.tekhn.nauk,  
red.; BORUNOV, N.I., tekhn.red.

[Electrical equipment for industrial machinery; electrical  
equipment for metal-cutting machines] Elektrooborudovanie  
proizvodstvennykh mekhanizmov; elektrooborudovanie metallo-  
rezhushchikh stankov. Pod obshchei red. M.G. Chilikina. Moskva,  
Gos.energ. izd-vo, 1958. 238 p. (MIRA 12:1)  
(Machine tools) (Electric apparatus and appliances)

Zusman, V. G.

PHASE I BOOK EXPLOITATION

462

Kharizomenov, Igor' Vladimirovich, Doctor of Technical Sciences,  
Professor

Elektricheskoye oborudovaniye metallorazhushchikh stankov (Electrical  
Equipment of Metal-cutting Machine Tools) 2d ed., rev. and enl.  
Moscow, Mashgiz, 1958. 328 p. 25,000 copies printed.

Reviewer: Zusman, V. G., Candidate of Technical Sciences;  
Ed.: Khalizev, G. P., Candidate of Technical Sciences; Ed. of  
Publishing House: Shemshurina, Ye. A.; Tech. Ed.: Model', B. I.;  
Managing Ed. for literature on metal working and tool making  
(Mashgiz): Beyzel'man, R. D., Engineer.

PURPOSE: The book is approved as a textbook for machine-building  
vuzes by the Ministerstvo vysshego obrazovaniya SSSR  
(Ministry of Higher Education, USSR), and contains the

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Electrical Equipment of Metal-cutting Machine Tools

basic information necessary to engineers designing or operating modern metal-cutting machine tools.

COVERAGE: The book examines problems connected with the electrical equipment of metal-cutting machine tools. Systems and electromechanical properties of machine tool electric drives, fundamentals of dynamics, the equipment for machine tool electrification, and methods and systems of machine tool electrical automation are described. Special attention is paid to electrical control and automation and also to further possibilities of applying machine tool electrification in student designing. Recent achievements in machine tool electrification in the USSR and in other countries are reviewed. The book follows the program approved by the Ministry of Higher Education of the USSR. A knowledge of the principles of electrical engineering is a prerequisite. To help the mechanical

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engineer in designing the machine tool, the book devotes considerable attention to the use of catalogue data for electric motors. No personalities are mentioned. There are 27 references, all of them Soviet.

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Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti

Avtomatizatsiya i mekhanizatsiya protsessov proizvodstva v priborostroyeni  
(Automation and Mechanization of Production Processes in Instrument  
Manufacturing) Moscow, Mashgiz, 1958. 591 p. 8,500 copies printed.

Ed.: Gavrilov, A. N., Doctor of Technical Sciences, Professor; Reviewer:  
Vladziyevskiy, A. P., Doctor of Technical Sciences; Ed. of Publishing House:  
Kochetova, G. F., Engineer; Tech. Ed.: Model', B. I.

PURPOSE: This book is intended for engineers, technicians, and scientific per-  
sonnel concerned with mechanization and automation of production processes in  
instrument manufacturing, and for students and teachers of this subject in  
vtuzes.

COVERAGE: The book describes the characteristic features of the present state  
of mechanization and automation of production processes in the instrument  
industry. Part 1. describes the planning of automation means, the theory of  
precision, economic efficiency under automated production conditions, and also

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the theory and practice of overall mechanization and automation. Parts 2, 3, and 4 discuss the most characteristic and effective methods and means of automation and mechanization in all stages of instrument manufacturing. No personalities are mentioned. There are no references.

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